Brede Primary School: Progression of skills and knowledge

Progression of knowledge: Science							
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working scientifically		I can ask simple questions and I know they can be answered in different ways. I can observe closely and use these to answer my questions I can gather and record data to record my answers I can identify and classify	I can use simple equipment and make careful observations I can perform simple tests to find answers to my questions I can gather and record data to record my answers I can identify and classify	I can set up practical enquires, comparisons and fair tests I can make carefully observations and take accurate measurements using a range of equipment I can record my findings by using scientific language, labelled diagrams, keys, bar charts and tables I can use my results to draw simple conclusions	I can take accurate measurements using a range of scientific apparatus including data loggers I can present findings using tables, graphs and charts as appropriate I can use scientific evidence to support my findings I can use report on my findings including oral and written presentations	I can plan scientific investigations, including controlling variables where appropriate I can record data using diagrams, keys, tables and a range of graphs including line graphs I can report conclusions and explanations from scientific investigations using scientific evidence to support findings I can take measurements using a range of equipment	I can use my test result to make predictions and start to design further investigations I can plan different types of scientific enquiry and report and present findings from enquiries including conclusions and relationships and the degree of accuracy in results I can identify scientific evidence that has been used to support or refute ideas or arguments. I can take measurements using a range of equipment with increasing accuracy and take repeat measurements.

Brede Primary School: Progression of skills and knowledge

Biology	***Reception***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Year 5***	***Year 6***
Plants *(Year 1, 2 and 3)*		I can identify and name a range of common wild and garden plants including deciduous and evergreen trees I can identify and describe the basic structure of plants and trees	I can describe the basic needs for plant growth (light, water, appropriate temperature) I can observe and describe how seeds and bulbs grow to mature plants	I can identify the main parts and functions of a plant and describe the main requirements for plant growth I can explain the main stages of plant reproduction (pollination, fertilisation, seed dispersal)			
Animals including humans *(Years 1-6)*		I can identify and name common animals including fish, amphibians, reptiles, birds and mammals, including pets I can identify animals that are herbivores, omnivores and carnivores I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) I can identify, name, draw and label the basic parts of the	I can describe the basic needs of humans and other animals (water, food, air) I can describe the importance of exercise, diet and hygiene for humans I notice that animals including humans have offspring that grow into adults	I can explain some functions of skeletons and muscles in animals and humans I can explain that animals including humans need the correct types and amount of nutrition and they cannot make their own food.	I can describe the simple functions of the basic parts of the digestive system in humans I can construct and interpret a variety of food chains, identifying producers, predators and prey.	I can describe the changes as humans develop to old age	I can explain the main parts and functions of the human circulatory system I can explain how water and nutrients are transported

		human body and say which part of the body is associated with each sense.					
Living things and their habitats *Year 4-6)*					I can group animals in different ways and use a classification key to identify plants or animals I can recognise that environments can change and this can pose dangers for wildlife.	I can describe the life process of reproduction in some plants and animals I can describe the difference in life cycles between mammals, insects, birds and amphibians	I can classify some plants, animals and micro-organisms, giving reasons to explain the choices made.
Evolution and inheritance *(Year 6)*							I can identify how adaptation of plants and animals over time may lead to evolution. I can recognise that living things produce offspring, not usually identical to their parents. I can recognise that living things have changed over time and that fossils provide information on living things from millions of years ago.

Brede Primary School: Progression of skills and knowledge

Chemistry	***Reception***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Year 5***	***Year 6***
Everyday materials *(Year 1)* ***Materials*** *(Year 2)* ***Rocks*** *(Year 3)* ***States of matter*** *(Year 4)* ***Properties and changes of materials*** *(Year 5)*		**Everyday materials** I can distinguish between an object and the material from which it is made I can identify, name and describe the properties of a variety of everyday materials I can compare and group a range of materials based on their properties	**Materials** I can identify and compare the suitability of different materials I can find out how some materials can be changed by a push, pull etc	**Rocks** I can identify the three main rock types and describe their properties. I can describe how fossils are formed	**States of matter** I can compare and group materials together as solids, liquids or gases I can explain the role played by evaporation and condensation in the water cycle and link	**Properties and changes of materials** I can explain how mixtures can be separated through filtering, sieving and evaporating I can identify reversible and irreversible changes and explain that some irreversible changes form new materials I can give reasons based on comparative tests of why particular materials are chosen	

Brede Primary School: Progression of skills and knowledge

Physics	***Reception***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Year 5***	***Year 6***
Seasons *(Year 1)* ***Forces*** *(Year 3 and Year 5)* ***Earth and space*** *(Year 5)*		**Seasons** I can observe changes across the seasons		**Forces** I can group materials according to their magnetic properties I can compare how materials move on different surfaces I can predict if two magnets will attract or repel		**Forces** I can explain that gravity causes unsupported objects to fall towards the Earth I can identify effects of air resistance, water resistance and friction between moving surfaces I can recognise that some mechanisms such as levers pulleys and gears allow a smaller force to have a greater effect. **Earth and space** I can describe the movement of the Earth, and other planets, relative to the Sun I can explain day and night on earth, and the apparent movement of the Sun	

Brede Primary School: Progression of skills and knowledge

Physics	***Reception***	***Year 1***	***Year 2***	***Year 3***	***Year 4***	***Year 5***	***Year 6***
Light *(Year 3 and 6)* ***Electricity*** *(Year 4 and 6)* ***Sound*** *(Year 4)*				**Light** I can explain how shadows are formed I can find patterns in the way that the sizes of shadows change.	**Electricity** I can construct a simple series electrical circuit including a switch and identify and name its basic parts I can identify conductors and insulators **Sound** I can how sounds are made and how they travel to our ears I can find patterns between pitch and volume of sound and other factors		**Light** I can explain how we see things and that objects are seen because they either reflect or give out light I can use the idea that light travels in straight lines to explain the shapes of shadows **Electricity** I can explain how the number of cells affects bulbs, buzzers or motors in a circuit I can use recognised symbols when representing a simple circuit in a diagram.

Brede Primary School: Progression of skills and knowledge

Progression of skills: Science						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working scientifically	I can ask simple questions and I know they can be answered in different ways. I can observe closely and use these to answer my questions I can gather and record data to record my answers I can identify and classify	I can use simple equipment and make careful observations I can perform simple tests to find answers to my questions I can gather and record data to record my answers I can identify and classify	I can set up practical enquires, comparisons and fair tests I can make carefully observations and take accurate measurements using a range of equipment I can record my findings by using scientific language, labelled diagrams, keys, bar charts and tables I can use my results to draw simple conclusions	I can take accurate measurements using a range of scientific apparatus including data loggers I can present findings using tables, graphs and charts as appropriate I can use scientific evidence to support my findings I can use report on my findings including oral and written presentations	I can plan scientific investigations, including controlling variables where appropriate I can record data using diagrams, keys, tables and a range of graphs including line graphs I can report conclusions and explanations from scientific investigations using scientific evidence to support findings I can take measurements using a range of equipment	I can use my test result to make predictions and start to design further investigations I can plan different types of scientific enquiry and report and present findings from enquiries including conclusions and relationships and the degree of accuracy in results I can identify scientific evidence that has been used to support or refute ideas or arguments. I can take measurements using a range of equipment with increasing accuracy and take repeat measurements.

Brede Primary School: Progression of skills and knowledge

Testing	Perform simple tests (Year 1 focus) e.g. Which materials keep things warmest? Know whether the test has been successful and can say what has been learned.	Perform simple comparative and fair tests (Yr 2 focus) e.g. Finding out how seeds grow best	Set up simple practical enquiries, comparative and fair tests e.g. To see which type of soil is most suitable when growing two similar plants? To see if their right hand is as efficient as their left. Set up a fair test with different variables e.g. the best conditions for a plant to grow. Can explain to a partner why a test is a fair one.	Set up simple practical enquiries, comparative and fair tests e.g. Which of two instruments make the highest or lowest sound and does a glass of ice weigh more than a glass of water. Set up a fair test with more than one variable e.g. using different materials to cut out sound. Can explain to others why a test is fair e.g. discover how fast ice melts in different temps.	Set up an investigation when it is appropriate e.g. finding out which materials dissolve or not. Set up a fair test when needed e.g. Which surfaces create most friction? Set up an enquiry based investigation Find out what adults/ children can do now that they couldn't do when they were a baby. Know what variables are in a given enquiry and can isolate each one when investigating. e.g. Finding out how effective parachutes are when made with different materials.	Know which type of investigation is needed to suit a particular scientific enquiry e.g. Looking at the relationship between pulse and exercise. Set up a fair test when needed e.g. Does light travel in straight lines? Know how to set up an enquiry based investigation e.g. What is the relationship between oxygen and blood?
Scientific questions	Ask simple questions and recognise that they can be answered in different ways e.g. Why are flowers different colours?	Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum e.g.	Ask relevant questions and use different types of scientific enquiries to answer them e.g. Why does the moon appear as different shapes in the night sky?	Ask relevant questions and use different types of scientific enquiries to answer them e.g. Why are steam and ice the same thing?	Plan different types of scientific enquires to answer given questions	Plan different types of scientific enquiries to answer their own or others' questions.

Brede Primary School: Progression of skills and knowledge

	Why do some animals eat meat and others do not?	Why do some trees lose their leaves in autumn and others do not? How long are the roots of tall trees? Why do some animals have underground habitats?	Why do shadows change during the day? Where does a fossil come from?	Why is the liver important in the digestive system? What do we mean by pitch when it comes to sound?		
Measuring	Use simple equipment to observe closely (Y1 focus)	Use simple equipment such as thermometers and rain gauges to observe closely changes over time (Y2 focus)	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (Year 3 focus)	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers (Year 4 focus	Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (Y5 maths focus including capacity and mass)	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (Y6 focus including capacity, mass, ratio and proportion)
Gathering and recording	Gather and record data to help in answering questions (Year 1 focus)	Gather and record data to help in answering questions including from secondary sources of information using drawings, labelled diagrams, block graphs or tables. (Year 2 focus)	Gather, record, classify and present data in a variety of ways to help in answering questions drawings, labelled diagrams, keys and child constructed bar charts and tables (Year 3 focus)	Gather, record, classify and present data in a variety of ways to help in answering questions drawings, labelled diagrams, keys and child constructed bar charts and tables (Year 4 focus)	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (Year 5 focus)	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs (Year 6 focus)
Communicating findings	Make a simple written explanation about what has been learned from an investigation or what conclusions have been found.	Communicate his/her Ideas, what he/she does and what he/she finds out In a variety of ways e.g. simple written reports or write ups.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (Year 3 focus)	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions (Year 4 focus)	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other

					presentations (Year 5 focus)	presentations (Year 6 focus)
Classifying	Identify and classify e.g. Mammals and birds (Year1 focus)	Identify, group and classify according to a given criteria e.g. Deciduous and coniferous trees (Year 2 focus) e.g. using a Venn Diagram	Group information according to common factors e.g. plants that grow in woodlands/plants that grow in gardens. (Yr 3 focus) e.g. Venn Diagrams with bisecting sets or Carroll Diagrams	Group information according to common factors e.g. materials that make good conductors or insulators. (Yr4 focus) e.g. Venn Diagrams with bisecting sets or Carroll Diagrams	Group and classify things and recognise patterns using appropriate ways of presenting e.g. classification keys.	Group and classify things and recognise patterns using appropriate ways of presenting e.g. classification keys.
Scientific research			Use research to find out a range of things e.g. How reflection can help us see things that are around the corner. What are the main differences between sedimentary and igneous rocks?	Use research to find out a range of things e.g. Which materials make effective conductors and insulators of electricity? How much time it takes to digest our food.	Find things out using a wide range of secondary sources of information	Find things out using a wide range of secondary sources of information
Concluding and questioning		Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns (Year 2 focus)	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (Year 3 focus)	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions (Year 4 focus)	Use results to draw conclusions. Is evaluative when explaining findings from scientific enquiries and is clear about what has happened in recent enquiries and can relate this to other enquiries where	Use results to draw conclusions. Is evaluative when explaining findings from scientific enquiries and is clear about what has happened in recent enquiries and can relate this to other enquiries where

					appropriate (Year 5 focus)	appropriate (Year 6 focus)
Using scientific evidence		Use straightforward scientific evidence to answer questions or to support his/her findings (Year 3 focus)	Use straight forward scientific evidence to answer questions or to support his/her findings (Year 4 focus)	Use straight forward scientific evidence to answer questions or to support his/her findings (Year 4 focus)	Identify scientific evidence that has been used to support or refute ideas or arguments (Year 5 focus)	Identify scientific evidence that has been used to support or refute ideas or arguments (Year 6 focus)